

"Belgica" Mounds in Porcupine Seabight, NE Atlantic: Biological Zonation and Environmental Control

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The Belgica mounds are located on the eastern slope of Porcupine Basin between 51°10'N - 51°35'N and 11°30'W-11°45'W in water depths of 600 m to 900 m. Outcropping mounds are located on the steepest part of the slope between 750 m and 850 m. They are largest in the south and decrease in size to the north where the slope is gentler. These larger mounds merge into composite mounds up to 190 m high, 2 km to over 4 km long and have a width between 500 m - 1000 m. The eastern upslope flank of seafloor mounds is ponded with sediment while the entire western, downslope flank of the mounds remains exposed. Despite the evident asymmetry in depositional environment at both sides of a mound, Belgica mounds appear conical on seismic profiles, with an average slope of 10-15°. The base of the Belgica mounds is formed by a continuous erosional surface, probably of Miocene age. The deeply incised substratum features a very faintly stratified seismic facies and is absent in the northern part of the province. It is underlain by a sequence of sigmoidal deposits. This start-up event suggests drastic environmental changes that favoured coral growth at a certain period. Such changes may have been triggered by changes in the oceanographic circulation patterns. The mounds are associated with features related to strong currents. Zonation and biodiversity of the present coral banks was investigated by means of a videotranssect and boxcoreing across some of the mounds. Mainly the basinward flanks of the mounds showed patchy *Lophelia* communities in association with a diverse epifauna of mainly sponges and polychaetes. Along these flanks the biological communities showed a symmetrical zonation pattern. Frequently, a small patch of living *Lophelia* midway the mound slope grades on either side into a dead coral zone that finally turns into a coral rubble zone.